

REMARKS

Claims 1 to 4, 6 to 14, 19 to 23 and 28 to 47 are pending. Claims 34 to 36 are cancelled. Claims 45 to 49 are new.

No claims are allowed.

1. Previously, the Examiner had provisionally rejected claims 1, 32 and 33 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7, 14 and 15 of co-pending Application Serial No. 10/809,034. Since the Examiner did not affirmatively acknowledge Applicant's request to hold that requirement in abeyance until patentable subject matter is found in the co-pending application, the Applicant is proceeding forward under that assumption.

2. Claim 44 is rejected under 35 U.S.C. 112, second paragraph. The indefinite language noted in the claim by the Examiner has been amended.

Reconsideration of this rejection is requested.

3. Claims 1 to 3, 6 to 8, 10 to 13, 19 to 22, 28 to 30, 32, 34 to 36 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo (U.S. Patent No. 6,406,478) in view of Trebing et al. (U.S. Patent No. 5,601,553).

Kuo describes bone reinforcement plates having through holes 21 and slots 22. Both the through holes and slots comprise an upper portion leading inwardly and downwardly through the plate thickness to a lower portion having a cylindrical shape. This is best shown in Figs. 3 and 6 where screws 30 are received in a hole 21 and a slot 22. The screw has a frusto-conical head portion extending from a threaded shaft. The frusto-conical head matches the shape of the upper portions of the hole and slot.

This provides a wide area contact of the screw head with the hole 21 and the slot 22, respectively. However, the threaded shaft of the screw is of a lesser diameter than that of the cylindrical lower portion of the hole 21 and the slot 22. Since neither the hole nor the slot is threaded, there isn't any need to have a threaded engagement between the screw and the hole or the slot of Kuo's plate. So, even if Kuo had provided the lower portions of the hole and slot with a diameter substantially similar to that of the threaded screw shaft, the screw wouldn't "lock" with the bone plate, as called out in amended independent claim 1.

Trebing et al. relates to a locking plate and bone screw assembly. As described at column 2, line 66 to column 3, line 2, "[t]he plate is provided with a plurality of threaded screw holes 11-15, five in the example shown in FIGS. 1 and 2, for locking screws. All are chamfered at the upper surface of the plate." Additionally, the plate is provided with two holes 16, 17 for temporary screws. These holes 16 and 17 are elongated "with a camming surface 18 to enable the hole to be used to aid in compressing graft material." But, as in the previously cited Weaver et al. reference (U.S. Patent No. 6,623,486), the elongated holes 16, 17 in Trebing et al. are not threaded at their lower portion spaced toward the bottom side of the plate from the camming surface 18. That the lower portion of the elongated holes 16, 17 is unthreaded is clearly evident from the cross-sectional views shown in Figs. 3, 6 and 8. The cross-sectional views in Figs. 4 and 5 are of the screw holes 11-15, not the two elongated holes 16 and 17. In that light, it's the Applicant's position that Trebing et al. is merely a cumulative reference with respect to Weaver et al. Neither the patent to Trebing et al. nor the Weaver et al. patent teach a complex aperture having a "threaded lower surface adapted to lock with

threads of a corresponding bone screw in one or the other of the overlapping holes, but not both."

In other words, and as previously reasoned with respect to Weaver et al., to hold that Kuo in view of Trebing et al. renders amended independent claim 1 unpatentable is to credit the skilled artisan with being able to make a two-step improvement on the prior art. The first step is to combine Trebing et al.'s threads in circular holes 11-15 with the unthreaded lower portions of Kuo's hole and slot. The second step is to then grant the skilled artisan with having the further insight to resize the diameter of the thusly threaded lower portions of Kuo's hole and slot so that it threadingly contacts the screw shaft. As before, it's the applicant's opinion that that's giving the skilled artisan more credit than he deserves and certainly more than the prior art teaches.

In fact, it is the applicant's position that Trebing et al. purposely made the lower portions of the elongated holes 16, 17 unthreaded so that the shaft of a screw wouldn't contact or catch on the lower portions thereof. That's because the elongated holes 16, 17 are described as accepting "temporary screws" (column 3, line 22). In Trebing's locking plate system there was no need for contact between the screw and plate there. What is needed is contact at the upper compression ramp portions of the holes 16, 17 so that a graft material is maintained under compression while the plate's exact position is adjusted along the length of the elongated holes 16, 17 with respect to the "temporary" screws. Once properly positioned, the plate is permanently locked to the bone with screws received in the threaded cylindrical holes 11-15.

Accordingly, amended independent claim 1 is allowable over the cited combination of Kuo in view of Trebing et al. Claims 2, 3, 6 to 8, 10 to 13, 19 to 22, 28 to 30, 32 and 43 are patentable

as hinging from an allowable base claim. Claims 34 to 36 have been cancelled, thereby rendering this rejection moot with respect to them.

Reconsideration of this rejection is requested.

4. Claims 4, 9, 14, 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo in view of Trebing et al., and further in view of Orbay (U.S. Patent No. 6,358,250). Orbay teaches a bone plate with holes that define axes which are oblique relative to each other. Nonetheless, claims 4, 9, 14, 23 and 31 each depend from amended independent claim 1. As discussed in section 3 above, amended independent claim 1 is allowable over the combination of Kuo in view of Trebing et al. The inclusion of Orbay does not adversely affect that allowability. Accordingly, these claims are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

5. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo in view of Trebing et al., and further in view of Cesarone (U.S. Patent No. 5,851,207). Cesarone relates to a separable surgical drill guide and plate. Nonetheless, claim 33 depends from amended independent claim 32 which, as discussed in section 3 above, is allowable over the combination of Kuo in view of Trebing et al. Accordingly, claim 33 is patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

6. Claims 37 to 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo in view of Trebing et al. and Tepic et al. (U.S. Patent No. 5,733,287). Tepic et al. teaches a bone plate with recesses 13 located on the bottom side to reduce peak

stresses. In any event, independent claim 37 has been amended into a form that is allowable over the combination of Kuo in view of Trebing et al. This prior art combination with respect to the allowability of amended independent claim 1 has previously been discussed in section 3 above. The addition of Tepic et al.'s teachings does not adversely affect that allowability. Accordingly, claims 38 to 41 are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

7. Claims 37, 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo in view of Trebing et al and Klaue et al. (U.S. Patent No. 5,002,544). The Klaue et al. patent teaches a bone plate with recesses 10 located on the bottom side thereof. In any event, independent claim 37 has been amended into an allowable form and the addition of Klaue et al.'s teachings does not adversely affect that. Accordingly, claims 38 to 41 are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

8. Independent claims 47 to 49 are new and believed to be patentable over the cited prior art for similar reasons as have already been discussed with respect to the examined claims.

It is believed that claims 1 to 4, 6 to 14, 19 to 23 and 28 to 33 and 37 to 44 are now in condition for allowance. Notice of Allowance is requested.

Respectfully submitted,



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